

**Petroleum Spills of One Barrel and Greater from  
Federal Outer Continental Shelf Facilities  
Resulting from Damages Caused by 2005 Hurricanes Katrina and Rita  
Including Post-Hurricane Seepage through December 2007**

**SUMMARY**

The loss of hydrocarbons from wells on the Federal Outer Continental Shelf (OCS) during Hurricanes Katrina and Rita was minimized by to the successful operation of the safety valves that are required to be installed at least 100 feet below the mudline in each wellbore. The check valves on pipeline safety joints automatically activated when pipelines were breached which limited the potential losses to the volumes within the damaged sections. All OCS facilities in areas threatened by the storms' approach were shut in prior to the hurricanes so that oil losses were mostly limited to the oil stored on the damaged platforms and rigs or contained in damaged pipeline sections between the check valves. The hydrocarbons lost during the hurricanes were thoroughly dispersed offshore by the hostile sea conditions which eliminated the potential for oiling the shores. There were no accounts of environmental consequences resulting from spills from OCS facilities:

- no spill contacts to the shoreline
- no oiling of marine mammals, birds, or other wildlife
- no large volumes of oil on the ocean surface to be collected or cleaned up
- no identified environmental impacts from any OCS spills from Hurricanes Katrina or Rita

MMS has identified 165 spills of petroleum products of one barrel or greater totaling 14,676 barrels that were lost from platforms, rigs, and pipelines on the Federal OCS. Approximately 90.0% of the spillage, 13,214 barrels, was released during the hurricanes. An estimated 4,707 barrels were lost during Katrina, and 8,507 barrels were lost during Rita from damaged, destroyed, and lost OCS facilities. The intensity of the hurricanes instantaneously forced the dispersion and dilution of the released petroleum into the open ocean which precluded the formation of voluminous slicks. Approximately 10.0% of the spillage is 1,462 barrels in small leaks and chronic seepage from damaged structures between October 2005 and December 2007, 163 barrels from Katrina and 1,299 barrels from Rita. (Any calendar quarter for which a structure's seepage accumulated to at least one barrel has been counted as a separate spill.) Damaged platforms were responsible for 1,455 barrels of this reported seepage, only 7 barrels were attributed to pipelines. Overall, 4,870 barrels (33.2%) were attributed to Katrina, and 9,806 barrels (66.8%) to Rita, either during the hurricanes, or through subsequent seepage through December 2007. The ongoing salvage efforts from Hurricanes Katrina and Rita occasionally cause releases as structures are cut up and removed and the wells are being plugged and abandoned. These activities will continue throughout 2008 into 2009 and some final abandonments may not be completed until 2010. See Table 1.

TABLE 1.

**Petroleum Spills of One Barrel and Greater from Federal OCS Facilities  
Resulting from Damages Caused by 2005 Hurricanes Katrina and Rita  
Losses During the Hurricanes Vs. Subsequent Seepage Through December 2007**

Hurricane	When Spill Occurred	Total Petroleum barrels	Crude Oil & Condensate barrels	Refined Petroleum barrels	Number of Spills counts
<b>KATRINA &amp; RITA COMBINED</b>	<b>All Spills</b>	<b>14,676.1</b>	<b>10,484.9</b>	<b>4,191.2</b>	<b>165</b>
	During Hurricane	13,213.6	9,027.3	4,186.3	124
	Subsequent Seepage	1,462.5	1,457.6	4.9	41
	Oct. - Dec. 2005	249.3	249.3	-	5
	Jan. - Dec. 2006	1,104.2	1,100.6	3.6	22
	Jan. - Dec. 2007	109.1	107.8	1.3	14
<b>KATRINA ONLY</b>	<b>All Spills</b>	<b>4,870.0</b>	<b>4,279.8</b>	<b>590.1</b>	<b>83</b>
	During Hurricane	4,706.9	4,116.7	590.1	71
	Subsequent Seepage	163.1	163.1	-	12
	Oct. - Dec. 2005	22.0	22.0	-	2
	Jan. - Dec. 2006	115.6	115.6	-	6
	Jan. - Dec. 2007	25.5	25.5	-	4
<b>RITA ONLY</b>	<b>All Spills</b>	<b>9,806.1</b>	<b>6,205.1</b>	<b>3,601.1</b>	<b>82</b>
	During Hurricane	8,506.7	4,910.5	3,596.2	53
	Subsequent Seepage	1,299.4	1,294.6	4.9	29
	Oct. - Dec. 2005	227.3	227.3	-	3
	Jan. - Dec. 2006	988.6	985.0	3.6	16
	Jan. - Dec. 2007	83.6	82.3	1.3	10

**NOTES:** one barrel = 42 U.S. gallons      Columns may not add due to rounding

The loss of hydrocarbons from wells on the Federal Outer Continental Shelf (OCS) from Hurricanes Katrina and Rita was minimal due to the successful operation of the required safety valves. All OCS facilities in areas threatened by the storms' approach were shut in prior to the hurricanes so that oil losses were mostly limited to the oil stored on the damaged structures or contained in the individual damaged pipeline segments. The lost products were thoroughly dispersed during the hurricanes. There were no accounts of environmental consequences resulting from spills from OCS facilities.

Spill volumes are most likely overestimated. The high volume was used whenever the spill estimate involved a range of values, and many volumes are based on "worst case" assumptions. MMS's spill estimates have been, and will continue to be, revised as better information becomes available. Some of the petroleum counted as lost may have been recovered from intact tanks during salvage operations.

and December 2007. The ongoing salvage and abandonment efforts on structures destroyed by Hurricanes Katrina and Rita occasionally cause releases. Daily seepage, including amounts less than one barrel, was aggregated by calendar quarters. Any calendar quarter for which a structure's seepage accumulated to at least one barrel has been counted as a separate spill. Seepage in 41 spills totaled 1,462.5, or 90% of the 14,676.1 bbl spilled (13,213.6 bbl were released during the hurricanes). Of the 41 spills and seepage totaling 1,462.5 barrels between October 2005 and December 2007, platforms were responsible for 38 of the spills totaling 1,455.1 barrels, pipelines were responsible for 3 spills totaling 7.4 barrels.

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## SUMMARY (continued)

MMS uses the U.S. Coast Guard's offshore spill size classifications: MINOR, less than 10,000 gallons (238 barrels); MEDIUM, 10,000 to 99,999 gallons (238 to 2,380 barrels), and MAJOR, 100,000 gallons (2,381 barrels) and greater. These size categories are for coastal and offshore waters and are based solely on spill volume. The 165 spills from Hurricanes Katrina and Rita (including seepage through December 2007) were comprised of:

- 153 MINOR spills totaling 4,732 barrels,
- 12 MEDIUM spills totaling 9,944 barrels, and
- No MAJOR spills.

The 153 MINOR spills include 76 spills less than 10 barrels and another 42 spills between 10 and 49 barrels. All but one of the MEDIUM spills occurred during the hurricanes and so most of this spillage was completely dispersed during the storms. Only three MEDIUM spills were 1,000 barrels or greater, all three of which occurred during Hurricane Rita. The largest of these three spills was 2,000 barrels of condensate (a product of natural gas that dissipates rapidly) from a platform (EI 314 J) due to perforations in the conductor strings between the ocean floor and surface. A jack-up rig lost 1,572 barrels of refined products (Odessa), and 1,494 barrels of diesel was on a jack-up rig that has never been found (Ft. Worth). See Table 2 and Table A.

Damaged and destroyed platforms, rigs, and pipelines were the source of the 14,676 barrels of petroleum lost in 165 spills observed through December 2007. Platforms and rigs account for 92 of the spills and 11,690 barrels (79.7%) of the spillage. These losses include refined petroleum products such as diesel and lube oil stored on the platforms and rigs at the time of the hurricanes. Pipeline losses account for 73 of the spills totaling 2,986 barrels (20.3%). Platforms account for most of the subsequent hurricane-related releases from October 2005 through December 2007, 38 spills totaling 1,455.1 barrels. Only 3 pipeline releases totaling 7.4 barrels occurred after the hurricanes between October 2005 and December 2007. See Table 3.

There have been almost 800 petroleum spills smaller than one barrel (42 gallons) on the Federal OCS reported to the National Response Center (NRC) through December 2007 related to Hurricanes Katrina and Rita. These reports total to less than 50 barrels and averaged approximately 0.6 barrels (less than 3 gallons) each in size. These spills of less than one barrel dissipate quickly due to evaporation, dispersion by the winds and currents, and dilution by the ocean waters. Three gallons of crude oil can briefly create a sheen of an acre (43,560 square feet) or more in size on the ocean surface. These small releases generally do not cause identifiable environmental impacts out in the open ocean. These spills of less than one barrel were not included in the earlier discussions of spills of one barrel and greater.

The estimation of the total spillage associated with these hurricanes will not be complete until all operators have completed recovery efforts associated with the repair and/or have completed decommissioning of all the damaged structures. These activities will continue throughout 2008 into 2009 and some final abandonments may not be completed until 2010.

It should be noted that oil is a naturally occurring substance in the Gulf of Mexico. In 2002, "Oil in the Sea, III" published by the National Research Council of National Academy of Sciences estimated that more than 1,300 barrels per day seep naturally into the Gulf of Mexico from the seabed and coastal waters.

TABLE 2.

**Petroleum Spills of One Barrel and Greater from Federal OCS Facilities  
Resulting from Damages Caused by 2005 Hurricanes Katrina and Rita  
by Size Intervals and U.S. Coast Guard (USCG) Size Categories Through December 2007**

Hurricane	Total Petroleum barrels	Number of Spills counts	Size Category	Total Petroleum barrels	Crude Oil & Condensate barrels	Refined Petroleum barrels	Number of Spills counts
<b>KATRINA &amp; RITA COMBINED</b>	<b>14,676.1</b>	<b>165</b>	<b>All Spills</b>	<b>14,676.1</b>	<b>10,484.9</b>	<b>4,191.2</b>	<b>165</b>
MINOR*	4,732.3	153	1.0 - 9.9 bbl	266.6	218.7	47.9	76
			10.0 - 49.9 bbl	940.6	764.8	175.7	42
			50.0 - 99.9 bbl	1,182.2	1,030.5	151.7	19
			100.0 - 237.9 bbl	2,343.0	2,128.1	214.9	16
MEDIUM*	9,943.8	12	238.0 - 999.9 bbl	4,878.2	4,342.7	535.4	9
			1,000.0 - 2,380.9 bbl	5,065.7	2,000.0	3,065.7	3
MAJOR*	-	-	≥ 2,381.0 bbl	-	-	-	-
<b>KATRINA ONLY</b>	<b>4,870.0</b>	<b>83</b>	<b>All Spills</b>	<b>4,870.0</b>	<b>4,279.8</b>	<b>590.1</b>	<b>83</b>
MINOR*	2,655.7	78	1.0 - 9.9 bbl	124.1	112.4	11.7	33
			10.0 - 49.9 bbl	485.6	485.6	-	25
			50.0 - 99.9 bbl	679.5	627.1	52.4	11
			100.0 - 237.9 bbl	1,366.6	1,220.7	145.9	9
MEDIUM*	2,214.2	5	238.0 - 999.9 bbl	2,214.2	1,834.0	380.2	5
			1,000.0 - 2,380.9 bbl	-	-	-	-
MAJOR*	-	-	≥ 2,381.0 bbl	-	-	-	-
<b>RITA ONLY</b>	<b>9,806.1</b>	<b>82</b>	<b>All Spills</b>	<b>9,806.1</b>	<b>6,205.1</b>	<b>3,601.1</b>	<b>82</b>
MINOR*	2,076.5	75	1.0 - 9.9 bbl	142.5	106.3	36.2	43
			10.0 - 49.9 bbl	454.9	279.2	175.7	17
			50.0 - 99.9 bbl	502.7	403.4	99.3	8
			100.0 - 237.9 bbl	976.4	907.4	69.0	7
MEDIUM*	7,729.6	7	238.0 - 999.9 bbl	2,663.9	2,508.7	155.2	4
			1,000.0 - 2,380.9 bbl	5,065.7	2,000.0	3,065.7	3
MAJOR*	-	-	≥ 2,381.0 bbl	-	-	-	-

## \* USCG Size Categories:

MINOR: Less than 238 barrels (Less than 10,000 gallons)

MEDIUM: 238 to 2,380 barrels (10,000 to 99,999 gallons)

MAJOR: 2,381 barrels and more (100,000 gallons and more)

NOTES: one barrel = 42 U.S. gallons Columns may not add due to rounding

The loss of hydrocarbons from wells on the Federal Outer Continental Shelf (OCS) during Hurricanes Katrina and Rita was minimized by the successful operation of the safety valves that are required to be installed at least 100 feet below the mudline in each wellbore. The check valves on pipeline safety joints automatically activated when pipelines were breached which limited the potential losses to the volumes within the damaged sections. All OCS facilities in areas threatened by the storms' approach were shut in prior to the hurricanes so that oil losses were mostly limited to the oil stored on the damaged platforms and rigs or contained in damaged pipeline sections between the check valves. The hydrocarbons lost during the hurricanes were thoroughly dispersed offshore by the hostile sea conditions which eliminated the potential for oiling the shores. There were no accounts of environmental consequences resulting from spills from OCS facilities.

Spill volumes are most likely overestimated. The high volume was used whenever the spill estimate involved a range of values, and many volumes are based on "worst case" assumptions. MMS's spill estimates have been, and will continue to be, revised as better information becomes available. Some of the petroleum counted as lost may have been recovered from intact tanks during salvage operations.

December 2007. The ongoing salvage and abandonment efforts on structures destroyed by Hurricanes Katrina and Rita occasionally cause releases. Daily seepage, including amounts less than one barrel, was aggregated by calendar quarters. Any calendar quarter for which a structure's seepage accumulated to at least one barrel has been counted as a separate spill. Seepage in 41 spills totaled 1,462.5, or 90% of the 14,676.1 bbl spilled (13,213.6 bbl were released during the hurricanes). Of the 41 spills and seepage totaling 1,462.5 barrels between October 2005 and December 2007, platforms were responsible for 38 of the spills totaling 1,455.1 barrels, pipelines were responsible for 3 spills totaling 7.4 barrels.

MMS utilized the U.S. Coast Guard definitions for MINOR, MEDIUM and MAJOR spills because it is the industry standard for oil spills in U.S. Coastal and Offshore Waters. The spill designation of MINOR, MEDIUM, and MAJOR are based solely on spill volume.

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TABLE 3.

**Petroleum Spills of One Barrel and Greater from Federal OCS Facilities  
Resulting from Damages Caused by 2005 Hurricanes Katrina and Rita  
By Source: Platforms & Rigs Vs. Pipeline Through December 2007**

Hurricane	Spill Source	Total Petroleum barrels	Crude Oil & Condensate barrels	Refined Petroleum barrels	Number of Spills counts
<b>KATRINA &amp; RITA COMBINED</b>	<b>All Spills</b>	<b>14,676.1</b>	<b>10,484.9</b>	<b>4,191.2</b>	<b>165</b>
	<b>Platforms &amp; Rigs</b>	11,690.2	7,499.0	4,191.2	92
	<b>Pipelines</b>	2,985.9	2,985.9	-	73
<b>KATRINA ONLY</b>	<b>TOTAL</b>	<b>4,870.0</b>	<b>4,279.8</b>	<b>590.1</b>	<b>83</b>
	<b>Platforms &amp; Rigs</b>	3,199.4	2,609.2	590.1	39
	<b>Pipelines</b>	1,670.6	1,670.6	-	44
<b>RITA ONLY</b>	<b>TOTAL</b>	<b>9,806.1</b>	<b>6,205.1</b>	<b>3,601.1</b>	<b>82</b>
	<b>Platforms &amp; Rigs</b>	8,490.8	4,889.8	3,601.1	53
	<b>Pipelines</b>	1,315.3	1,315.3	-	29

**NOTES:** one barrel = 42 U.S. gallons      Columns may not add due to rounding

The loss of hydrocarbons from wells on the Federal Outer Continental Shelf (OCS) during Hurricanes Katrina and Rita was minimized by the successful operation of the safety valves that are required to be installed at least 100 feet below the mudline in each wellbore. The check valves on pipeline safety joints automatically activated when pipelines were breached which limited the potential losses to the volumes within the damaged sections. All OCS facilities in areas threatened by the storms' approach were shut in prior to the hurricanes so that oil losses were mostly limited to the oil stored on the damaged platforms and rigs or contained in damaged pipeline sections between the check valves. The hydrocarbons lost during the hurricanes were thoroughly dispersed offshore by the hostile sea conditions which eliminated the potential for oiling the shores. There were no accounts of environmental consequences resulting from spills from OCS facilities.

Spill volumes are most likely overestimated. The high volume was used whenever the spill estimate involved a range of values, and many volumes are based on "worst case" assumptions. MMS's spill estimates have been, and will continue to be, revised as better information becomes available. Some of the petroleum counted as lost may have been recovered from intact tanks during salvage operations.

This revision includes chronic seepage and occasional releases from hurricane-damaged structures between October 2005 and December 2007. The ongoing salvage and abandonment efforts on structures destroyed by Hurricanes Katrina and Rita occasionally cause releases. Daily seepage, including amounts less than one barrel, was aggregated by calendar quarters. Any calendar quarter for which a structure's seepage accumulated to at least one barrel has been counted as a separate spill. Seepage in 41 spills totaled 1,462.5, or 90% of the 14,676.1 bbl spilled (13,213.6 bbl were released during the hurricanes). Of the 41 spills and seepage totaling 1,462.5 barrels between October 2005 and December 2007, platforms were responsible for 38 of the spills totaling 1,455.1 barrels, pipelines were responsible for 3 spills totaling 7.4 barrels.

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## BACKGROUND AND NOTES

This discussion focuses on petroleum spillage from facilities associated with oil and gas activities that occurred in Federal OCS waters as a result of damages from Hurricanes Katrina and Rita in 2005.

Specifically **excluded** from these estimates are:

- An estimated 194,132 barrels (8.15 million gallons) of crude oil from twelve facilities located onshore or in State waters on the Louisiana Delta released during Hurricane Katrina. This included nine onshore facilities where 1,150 to 90,000 barrels were released when large oil storage tanks were breached. Approximately 97,800 barrels (50.4%) were recovered.
- An additional 132 spills totaling approximately 34,742 barrels (1.46 million gallons) occurred onshore or in State waters as a result of Hurricane Katrina with none of the oil recovered.
- An estimated 11,661 barrels (0.49 million gallons) of crude oil from eleven onshore or coastal facilities in State waters released during Hurricane Rita. This included three facilities where 2,285 to 6,000 barrels were released. Approximately 8,129 barrels (69.7%) were recovered.
- An additional 45 spills totaling 10,350 barrels (0.43 million gallons) occurred onshore or in State waters as a result of Hurricane Katrina with none of the oil recovered.
- Approximately 78,700 barrels of heavy fuel oil spilled in the West Cameron Area after a tug Rebel and barge DBL 152, en route to Florida, struck a submerged platform in WC 229 in November 2005. Approximately 3,800 barrels (4.8%) were recovered.

(Spill numbers for onshore spills and spills in State waters provided by the Louisiana Department of Environmental Quality, December 2007. Spill information for the barge spill is from U.S. Coast Guard Situation Report No. 70 dated October 2006.)

The damage inflicted by Hurricanes Katrina and Rita exceeded that of all previous storms to an industry which had not fully recovered from 2004's Hurricane Ivan. Hurricanes Katrina and Rita each attained Category 5 strengths as they passed through Federal OCS oil and gas fields within 4 weeks of each other. Hurricane Katrina contacted the Louisiana coast near New Orleans as a Category 3 storm on August 29, 2005. Hurricane Rita contacted Louisiana near Morgan City as a Category 3 storm on September 24, 2005. Approximately 75% of the 4,000 Federal OCS oil and gas facilities in the Gulf of Mexico were subject to hurricane force winds (up to 175 mph over open water) from these two hurricanes. Hurricanes Katrina and Rita jointly destroyed or seriously damaged 168 platforms and 55 rigs on the Federal OCS. There were also reports of damage to more than 560 pipeline segments. The swath of damage extended over 100 miles offshore from Port Arthur, Texas to Gulfport, Mississippi. Over 166 million barrels of oil production were curtailed (almost 30% of annual OCS crude and condensate production).

Nearshore and onshore damage was more widespread, resulting in a large number of support bases being unable to serve as jump-off points to help in the recovery effort. Support resources, such as marine vessels, barges, skilled craftsmen, and supplies optimized for normal operations were quickly overwhelmed. Onshore damage to homes and offices also stressed individuals and companies as they responded to the offshore situation. In spite of these problems, the oil and gas industry responded very well.

## BACKGROUND AND NOTES (continued)

All spills are required to be reported to the National Response Center (NRC) which is operated under the U.S. Coast Guard (USCG). The NRC Report is a "first report" at which time one or more key information elements may not yet be identified such as: the facility that is the source of the spill, the responsible party, the product spilled, and/or an estimate of the spill volume. NRC Reports are not corrected or updated. Spills related to Federal OCS oil and gas activities of 42 gallons (gal) or 1 barrel (barrels) or greater are required to be reported directly to the Minerals Management Service (MMS). Almost 1,200 NRC Reports have been filed for spills from Hurricanes Katrina and Rita in Federal OCS waters approximately half of which had no responsible party identified. Approximately 80% of the NRC Reports were for petroleum losses or sheen sightings of which about 45% had a volume estimate (many of the volume estimates were superseded at a later date with better information). The non-petroleum NRC Reports were for natural gas, chemicals, and non-release events such as spill potentials (volumes on board not known to be released) or fires.

MMS's petroleum spill volume estimates initially relied on: estimates from the operators provided to MMS in early 2006, USCG estimates as of April 2006, and rely on the NRC Report volume only if it was the only information available. As operators have continued their recovery efforts many have updated MMS with reduced loss estimates based on products actually recovered, and newly identified losses. Spill volumes are most likely overestimated. The high volume was used whenever the spill estimate involved a range of values, and many volumes are based on "worst case" assumptions. These spill estimates will be revised if and when better information becomes available. These activities will continue throughout 2008 into 2009 and some final abandonments may not be completed until 2010. Some of the petroleum products counted as lost from hurricane-damaged structures may have actually been recovered from intact tanks during salvage operations.

This revision includes chronic seepage and occasional releases from hurricane-damaged structures between October 2005 and December 2007. The ongoing salvage efforts from Hurricanes Katrina and Rita occasionally cause releases as structures are cut up and removed and the wells are being plugged and abandoned. Most of the reports are for sheens of a small fraction of a gallon in size. Seepage was accounted by calendar quarters where any quarter for which seepage accumulated to at least one barrel has been included as a spill. i.e. if a structure seeped 15 gallons per month every month for the first three months, or 45 gallons in the first quarter, a 1.1 barrel spill was counted for the structure for the first quarter (1 barrel = 42 gallons). See Table 1.

TABLE A.

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**Petroleum Spills of 50 Barrels and Greater from Federal OCS Facilities Resulting From Damages Caused by 2005 Hurricanes Katrina and Rita Through December 2007**

Hurricane	Area Block	Structure	Lease	Total Petroleum (bbl)	Crude Oil & Condensate (bbl)	Refined Petroleum (bbl)	Products	Operator	Damage	Distance Miles	Depth Feet
K	GI 040	Platform B 8-pile fixed	00128	242.0	242.0	-	242 bbl Crude Oil	BP America Production Company	Platform destroyed. Topside hydrocarbon losses were assumed to be crude oil (some may have been refined products).	14	83
K	GI 040	Platform F 6-pile fixed	00128	141.0	141.0	-	141 bbl Crude Oil	BP America Production Company	Platform destroyed. Topside hydrocarbon losses were assumed to be crude oil (some may have been refined products).	14	86
K	GI 041	Platform A 4-pile fixed	00129	204.1	204.1	-	204.1 bbl Crude Oil	BP America Production Company	Platform destroyed. Topside hydrocarbon losses were assumed to be crude oil (some may have been refined products).	17	91
K	GI 047	Platform C 8-pile fixed	00133	195.0	195.0	-	195 bbl Crude Oil	BP America Production Company	Platform destroyed. Topside hydrocarbon losses were assumed to be crude oil (some may have been refined products).	18	88
K	GI 047	Platform C 8-pile fixed	00133	59.0	59.0	-	59.0 bbl Crude Oil quarterly seepage in 3rd Quarter of 2006	BP America Production Company	Sheens totaled 59.0 bbl from July to September 2006 (2006Q3). Other quarters with seepage under 50 bbl: 18.6 bbl 2005Q4, 7.2 bbl 2006Q1, 25.8 bbl 2006Q2, 18.6 bbl 2006Q4, 4.2 bbl 2007Q1, 0.3 bbl 2007Q2, 14.1 bbl 2007Q3, 3.3 bbl 2007Q4	18	88
K	MC 109	Segment #9347 8" oil pipeline	G05825	960.0	960.0	-	Between 600 and 960 bbl Crude Oil	BP Exploration & Production, Inc.	Segment #9347 to MC 109 A-Amberjack platform found severed 7/27/2006. Damage occurred during Hurricane Katrina. Initial estimated crude loss was 100 to 2,000 bbl -- upon completion of investigation BP revised estimate downward to between 600 and 960 bbl.	18	1,100
K	MC 194	Platform A-Cognac fixed	G02638	325.0	325.0	-	325 bbl Crude Oil	Shell Offshore Inc.	1/2" needle valves sheared off downstream of oil Sales Tank due to waves striking the platform causing extensive damage. Drain system damaged.	15	1,023
K	MP 185	Rowan New Orleans jack-up rig	G25033	380.2	-	380.2	380.2 bbl Diesel	Magnum Hunter	Jack-up rig inverted and sank on location.	46	140
K	MP 306	Platform D 8-pile fixed	G01667	129.6	106.0	23.6	106 bbl Crude Oil, 11.7 bbl Diesel, 9.3 bbl Lube Oil, 2.6 bbl Mineral Oil	Noble Energy Inc.	Platform toppled/ destroyed.	29	255
<b>USCG SPILL SIZES</b>			<b>MINOR</b>	<b>Under 238 barrels (Under 10,000 gallons)</b>		<b>MEDIUM</b>	<b>238 bbl to 2,380 barrels 10,000 to 99,999 gallons</b>	<b>MAJOR</b>	<b>2,381 barrels and Greater (100,000 gallons and Greater)</b>		
Seepage (including observations less than one bbl) totaling 50 bbl or greater in a calendar quarter from hurricane-damaged structures October 2005 through December 2007. Losses at time of hurricanes shown separately.											

TABLE A.

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**Petroleum Spills of 50 Barrels and Greater from Federal OCS Facilities Resulting From Damages Caused by 2005 Hurricanes Katrina and Rita Through December 2007**

Hurricane	Area Block	Structure	Lease	Total Petroleum (bbl)	Crude Oil & Condensate (bbl)	Refined Petroleum (bbl)	Products	Operator	Damage	Distance Miles	Depth Feet
K	SP 062	Platform A 8-pile fixed	G01294	194.7	180.0	14.7	Fuel, 4.8 bbl Lube Oil, 1 bbl Hydraulic Oil & 46 mcf Natural Gas	Apache Corporation	Platform toppled/ destroyed.	17	340
K	SP 062	Segment #3968 8" oil pipeline	G01294	50.0	50.0	-	50 bbl Crude Oil	Chevron U.S.A. Inc.	The pipeline's receiving platform, South Pass 62A, was toppled during Hurricane Katrina	17	340
K	SP 062	Platform B 8-pile fixed	G01294	110.5	85.0	25.5	85 bbl Crude Oil, 24.3 bbl Lube Oil, 1.2 bbl Hydraulic and Other Oil & 51 mcf Natural Gas	Apache Corporation	Platform toppled/ destroyed.	17	322
K	SP 077	Segment #5773 10" bulk oil pipeline	G02184	132.0	132.0	-	132 bbl Crude Oil & 693 mcf Natural Gas	Chevron U.S.A. Inc.	Mudslide, line separated, 3,068' of 10" pipeline needed to be replaced.	7	216
K	SP 077	Segment #15049 10" bulk oil pipeline	G02184	55.0	55.0	-	55 bbl Crude Oil	Chevron U.S.A. Inc.	10" riser parted at C structure	7	240
K	ST 036	Segment # 15118 6"-8" bulk gas pipeline	G02624	50.0	50.0	-	50 bbl Condensate	Chevron U.S.A. Inc.	Pipeline parted	7	48
K	ST 135	Platform M 6-pile fixed	00462	51.2	47.6	3.6	47.6 bbl Crude Oil, 2.4 bbl Hydraulic Oil, 1.2 bbl Diesel	Chevron U.S.A. Inc.	Platform toppled/ destroyed.	29	116
K	ST 151	Platform G 8-pile fixed	00463	101.1	47.6	53.5	47.6 bbl Crude Oil, 49.9 bbl Aviation Fuel, 2.4 bbl Hydraulic Oil, 1.2 bbl Diesel	Chevron U.S.A. Inc.	Platform toppled/ destroyed.	32	137
K	ST 151	Platform I 8-pile fixed	00463	51.2	47.6	3.6	47.6 bbl Crude Oil, 2.4 bbl Hydraulic Oil, 1.2 bbl Diesel	Chevron U.S.A. Inc.	Platform toppled/ destroyed.	32	128
K	ST 151	Platform O 8-pile fixed	00463	50.0	47.6	2.4	47.6 bbl Crude Oil, 1.2 bbl Hydraulic Oil, 1.2 bbl Diesel	Chevron U.S.A. Inc.	Platform toppled/ destroyed.	32	137
K	ST 161	Platform A 8-pile fixed	G01248	51.2	50.0	1.2	50 bbl Crude Oil, 1.2 bbl Lube Oil & 43 mcf Natural Gas	Apache Corporation	Platform toppled/ destroyed.	32	117
K	ST 176	Platform A 8-pile fixed	G01259	97.4	95.2	2.1	95.24 bbl Crude Oil, 2.14 bbl Hydraulic and Other Oil	Chevron U.S.A. Inc.	Platform toppled/ destroyed.	35	140
<b>USCG SPILL SIZES</b>			<b>MINOR</b>	Under 238 barrels (Under 10,000 gallons)		<b>MEDIUM</b>	238 bbl to 2,380 barrels 10,000 to 99,999 gallons	<b>MAJOR</b>	2,381 barrels and Greater (100,000 gallons and Greater)		
Seepage (including observations less than one bbl) totaling 50 bbl or greater in a calendar quarter from hurricane-damaged structures October 2005 through December 2007. Losses at time of hurricanes shown separately.											

TABLE A.

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**Petroleum Spills of 50 Barrels and Greater from Federal OCS Facilities Resulting From Damages Caused by 2005 Hurricanes Katrina and Rita Through December 2007**

Hurricane	Area Block	Structure	Lease	Total Petroleum (bbl)	Crude Oil & Condensate (bbl)	Refined Petroleum (bbl)	Products	Operator	Damage	Distance Miles	Depth Feet
K	WD 094	Platform G 6-pile fixed	00839	307.0	307.0	-	307 bbl Crude Oil	BP America Production Company	Platform destroyed. Topside hydrocarbon losses were assumed to be crude oil (some may have been refined products).	27	153
K	WD 103	Platform A 8-pile fixed	00840	70.8	50.0	20.8	50 bbl Crude Oil, 7.1 bbl Diesel, 13.7 bbl Lube Oil & 37 mcf Natural Gas	Apache Corporation	Platform toppled/ destroyed	16	223
K	WD 104	Platform C 8-pile fixed	00841	158.6	130.0	28.6	130 bbl Condensate, 9.5 bbl Diesel, 19.1 bbl Lube Oil	Apache Corporation	Platform toppled/ destroyed	14	228
K	WD 133	Platform B 8-pile fixed	G01106	93.7	75.0	18.7	75 bbl Crude Oil, 7.2 bbl Diesel, 10.1 bbl Lube Oil, 1.4 bbl Mineral Oil	Apache Corporation	Platform toppled/ destroyed	35	285
R	EC 272	Platform A 4-pile fixed	G02047	66.7	-	66.7	66.7 bbl JP-5 Aviation Fuel	Chevron U.S.A. Inc.	Platform toppled/ destroyed	79	182
R	EC 322	Platform A 8-pile fixed	G02254	659.4	582.0	77.4	582 bbl Crude Oil, 35.7 bbl Diesel, 28.6 bbl Aviation Fuel, 13.1 bbl Motor Oil	Pioneer Natural Resources	Platform toppled/ destroyed. Platform wells A-1 and A-28 also toppled. Damaged storage tank and production vessels.	95	230
R	EC 322	Platform A 8-pile fixed	G02254	53.4	53.4	-	53.4 bbl Crude Oil quarterly seepage in 4th Quarter of 2005	Pioneer Natural Resources	Sheens totaled to 53.4 bbl from October to December 2005 (2005Q4). Other quarters with seepage under 50 bbl: 14.6 bbl 2006Q1, 41.1 bbl 2006Q2, 36.6 bbl 2006Q3. See next entry.	95	230
R	EC 322	Platform A 8-pile fixed	G02254	51.5	51.5	-	51.5 bbl Crude Oil quarterly seepage in 4th Quarter of 2006	Pioneer Natural Resources	Sheens totaled to 51.5 bbl from October to December 2006 (2006Q4). Other quarters with seepage under 50 bbl: 16.9 bbl 2007Q1, 30.4 bbl 2007Q2, 4.7 bbl 2007Q3, 1.0 bbl 2007Q4. See previous entry.	95	230
R	EI 043	Segment #1844 gas pipeline 14"x4" Subsea Tie-In	00078	100.0	100.0	-	Revised estimate down to 100 bbl Condensate based on engineering assessment - formerly worst case estimate of 1,812 bbl	Gulf South Pipeline Company	Suspect pipeline subsea tie-in was damaged by drifting vessel. Formerly listed as EI 51 where the segment initiates, the damage was in EI 43. A second segment #4754 in EI 95 was similarly revised from 1,551 bbl to one bbl condensate based on the same engineering assessment.	20	17
R	EI 294	Platform A 4-pile fixed	G03569	76.6	44.0	32.6	44 bbl Condensate, 17.7 bbl Engine Oil, 11.9 bbl Diesel, 3.0 bbl Hydraulic Oil	B.T. Operating Company	Platform toppled/ destroyed.	73	204
<b>USCG SPILL SIZES</b>			<b>MINOR</b>	Under 238 barrels (Under 10,000 gallons)		<b>MEDIUM</b>	238 bbl to 2,380 barrels 10,000 to 99,999 gallons	<b>MAJOR</b>	2,381 barrels and Greater (100,000 gallons and Greater)		
Seepage (including observations less than one bbl) totaling 50 bbl or greater in a calendar quarter from hurricane-damaged structures October 2005 through December 2007. Losses at time of hurricanes shown separately.											

TABLE A.

Rev. 6/23/2008

**Petroleum Spills of 50 Barrels and Greater from Federal OCS Facilities Resulting From Damages Caused by 2005 Hurricanes Katrina and Rita Through December 2007**

Hurricane	Area Block	Structure	Lease	Total Petroleum (bbl)	Crude Oil & Condensate (bbl)	Refined Petroleum (bbl)	Products	Operator	Damage	Distance Miles	Depth Feet
R	EI 313	Platform B 8-pile fixed	G02608	62.5	62.5	-	62.5 bbl Condensate quarterly seepage in 1st Quarter of 2006	Chevron U.S.A. Inc.	Sheens totaled 62.5 bbl between January and March 2006 (2006Q1) Other quarters with seepage under 50 bbl: 8.3 bbl 2005Q4. See next two rows	79	240
R	EI 313	Platform B 8-pile fixed	G02608	528.3	528.3	-	528.3 bbl Condensate quarterly seepage in 2nd Quarter of 2006	Chevron U.S.A. Inc.	Sheens totaled 528.3 bbl between April and June 2006. Sheens became prevalent in May 2006 until the primary source, well B-20, was successfully cemented in June 2006.	79	240
R	EI 313	Platform B 8-pile fixed	G02608	133.0	133.0	-	133.0 bbl Condensate quarterly seepage in 3rd Quarter of 2006	Chevron U.S.A. Inc.	Sheens totaled of 133.0 bbl between July and September 2006 as other wells decommissioned.	79	240
R	EI 314	Platform F 4-pile fixed	G01981	165.6	165.6	-	165.6 bbl Condensate quarterly seepage in 4th Quarter of 2005	Forest Oil Corporation	Sheens totaled of 165.6 bbl from October to December 2005. Platform toppled/destroyed by Hurricane Rita.	78	230
R	EI 314	Platform F 4-pile fixed	G01981	50.6	50.6	-	50.6 bbl Condensate quarterly seepage in 1st Quarter of 2006	Forest Oil Corporation	Sheens totaled 50.6 bbl from January through March 2006. Platform toppled/destroyed by Hurricane Rita.	78	230
R	EI 314	Platform J 4-pile fixed	G01981	2,000.0	2,000.0	-	2,000 bbl Condensate	Forest Oil Corporation	Platform toppled/destroyed. Discovered holes in conductor strings for wells A-2 & A-6. Ongoing pollution was contained with a pollution dome and make-shift sump.	78	230
R	EI 330	Platform S 4-pile fixed	G02115	181.0	150.0	31.0	150 bbl Crude Oil, 31 bbl Lube Oil	Devon Energy Production Company	Platform toppled/ destroyed. Sealed containers and process tank lost with facility.	82	254
R	EI 333	Platform A 8-pile fixed	G02317	188.0	150.0	38.0	150 bbl Condensate, 26 bbl Lube Oil, 12 bbl Diesel	Devon Energy Production Company	Platform toppled/ destroyed. Condensate and diesel storage tanks and sealed containers lost with facility.	80	231
R	EI 397	Platform A 3-pile fixed	G15271	100.8	100.8	-	100.8 bbl Crude Oil	W & T Offshore Inc.	Storage tank cracked.	112	472
R	GC 237	Platform A-Typhoon mini tension leg platform (MTLP)	G15563	614.2	536.4	77.8	536 bbl Crude Oil, 1.83 bbl Diesel & Turbine Oil, 42.72 bbl Lube Oil, 22.12 bbl Hydraulic Oil, 1.6 bbl mineral oil, 9.52 bbl Other Petroleum	Chevron U.S.A. Inc.	Mini Tension Leg Platform (MTLP) inverted/ destroyed. Decommissioned, towed to EI 367, and sunk to become artificial reef.	92	2,107
<b>USCG SPILL SIZES</b>			<b>MINOR</b>	Under 238 barrels (Under 10,000 gallons)	<b>MEDIUM</b>	238 bbl to 2,380 barrels 10,000 to 99,999 gallons	<b>MAJOR</b>	2,381 barrels and Greater (100,000 gallons and Greater)			
Seepage (including observations less than one bbl) totaling 50 bbl or greater in a calendar quarter from hurricane-damaged structures October 2005 through December 2007. Losses at time of hurricanes shown separately.											

**TABLE A.**

**Petroleum Spills of 50 Barrels and Greater from Federal OCS Facilities Resulting From Damages Caused by 2005 Hurricanes Katrina and Rita Through December 2007**

Hurricane	Area Block	Structure	Lease	Total Petroleum (bbl)	Crude Oil & Condensate (bbl)	Refined Petroleum (bbl)	Products	Operator	Damage	Distance Miles	Depth Feet
R	SM 146	Rowan Rig Ft. Worth jack-up rig	G09546	1,494.0	-	1,494.0	1,494 bbl Diesel	Hunt Petroleum (AEC) Inc.	Rig's legs collapsed and hull floated off location. Hull not located as of July 1, 2006 even though more than 1,200 square miles have been searched.	79	232
R	SS 248	Segment #5902 4" oil pipeline	G01029	75.0	75.0	-	75 bbl Crude Oil	Dominon Exploration & Production, Inc.	A section of the riser on the SS 248 D structure broke loose.	59	180
R	SS 250	Rowan Odessa jack-up rig	G27132	1,571.7	-	1,571.7	1,410.9 bbl Diesel, 5.6 bbl hydraulic oil, 5.4 bbl chain oil, 149.8 bbl Other Petroleum	Remington Oil & Gas Corporation	Jack-up rig's legs collapsed and hull floated off location. Hull found 6 miles from original location in SS 247.	69	182
R	VR 255	Segment # 3105 8" oil pipeline	G06678	862.0	862.0	-	862 bbl Crude Oil	Shell Pipeline Company	8" oil Pipeline fully severed by drill rig anchor drag. The volume is a worst case estimate usingf 100% capacity and 100% loss.	86	141
R	VR 255	Segment #11493 12 " oil pipeline	G01152	66.5	66.5	-	66.5 bbl Crude Oil	Shell Pipeline Company	12" riser was severed when the VR 255 B platform was toppled.	68	152
R	VR 313	Segment #5220 6" oil pipeline	G01172	108.0	108.0	-	108 bbl Crude Oil	Dominon Exploration & Production, Inc.	The Vermilion pipelines went down with the VR 313 A platform when it was toppled.	85	202
				<b>13,469.0</b>	<b>9,501.2</b>	<b>3,967.7</b>	<b>TOTALS</b>	Incl. 1,462.5 bbl chronic seepage between October 2005 and December 2007			
<b>USCG SPILL SIZES</b>			<b>MINOR</b>	Under 238 barrels (Under 10,000 gallons)		<b>MEDIUM</b>	238 bbl to 2,380 barrels 10,000 to 99,999 gallons		<b>MAJOR</b>	2,381 barrels and Greater (100,000 gallons and Greater)	
Seepage (including observations less than one bbl) totaling 50 bbl or greater in a calendar quarter from hurricane-damaged structures October 2005 through December 2007. Losses at time of hurricanes shown separately.											

<b>Summary of Petroleum Spills of 50 barrels or Greater from Hurricanes Katrina &amp; Rita Including Post-hurricane Seepage</b>				
Spill Source	Number	Crude Oil Condensate bbl spilled	Refined Petroleum bbl spilled	Total bbl spilled
Hurricane Katrina (storm)	24	3,622.8	578.5	4,201.3
Hurricane Rita (storm)	15	4,774.7	3,389.2	8,163.9
Katrina post-hurricane seepage	1	59.0	0.0	59.0
Rita post-hurricane seepage	7	1,044.8	0.0	1,044.8
<b>TOTAL</b>	<b>47</b>	<b>9,501.4</b>	<b>3,967.6</b>	<b>13,469.0</b>

**NOTES:** Columns may not add due to rounding

Spill volumes are most likely overestimated. The high volume was used whenever the spill estimate involved a range of values, and many volumes are based on "worst case" assumptions. MMS's spill estimates will be revised if and when better information becomes available. Some of the petroleum counted as lost may have been recovered from intact tanks during salvage operations.

For individual narratives on these spills see:  
<http://www.mms.gov/incidents/SigPoll2005HurricaneKatrina.htm>  
<http://www.mms.gov/incidents/SigPoll2005HurricaneRita.htm>